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Heavy hadrons production by coalescence in pp and AA collisions at RHIC and LHC

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The hadronization process of heavy hadrons with bottom and charm quarks, especially for baryons Λ_c and Λ_b , in a dense QGP medium is largely not understood.

We present within a coalescence plus fragmentation model the predictions for D_0 , D_s , Λ_c , B and Λ_b and the related baryon to meson ratios at RHIC and LHC in a wide range of transverse momentum region up to 10 GeV [1].

We will discuss how our model can predict values for Λ_c/D_0 and Λ_b/B of the order of $O(1)$, which is much larger than the expectations from fragmentation, and in agreement with early data from STAR collaboration [2].

Furthermore the same approach can be employed to predict baryon to meson ratio Λ/K [3], Λ_c/D^0 in pp collisions assuming that at the LHC top energies there can be the formation of QGP matter.

We find considerable volume effects that significantly reduce the ratios but still predict quite larger values with respect to fragmentation, again in agreement with recent data from ALICE in pp collisions [4]. A comparison to other coalescence models and thermal models is discussed.

[1] S. Plumari, V. Minissale, S.K. Das, and V. Greco, arXiv:1712.00730 [hep-ph]

[2] STAR Collaboration, Nucl.Phys. A967 (2017) 620-623

[3] V. Minissale, F. Scardina, and V. Greco, Phys. Rev. C 92, 054904 (2015)

[4] A. Grelli, ALICE Coll., plenary talk Strangeness in Quark Matter 2017, Utrecht

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